



**Proposed Amendments to the
Hexavalent Chromium Control
Measure For Decorative and Hard
Chrome Plating and Chromic Acid
Anodizing Facilities**

Staff Report

Stationary Source Division

April 1998

State of California
California Environmental Protection Agency
AIR RESOURCES BOARD

STAFF REPORT

INITIAL STATEMENT OF REASONS FOR THE
PROPOSED AMENDMENTS TO THE AIRBORNE TOXIC CONTROL MEASURE (ATCM)
FOR EMISSIONS OF HEXAVALENT CHROMIUM FROM CHROME PLATING AND
CHROMIC ACID ANODIZING OPERATIONS

Prepared by:
Lisa Jennings

Stationary Source Division
Air Resources Board

Reviewed by:

Peter D. Venturini, Chief, Stationary Source Division
Robert D. Fletcher, P.E., Chief, Emissions Assessment Branch
Daniel E. Donohoue, Manager, Technical Analysis Section

April 1998

State of California
California Environmental Protection Agency
AIR RESOURCES BOARD

INITIAL STATEMENT OF REASONS
FOR PROPOSED RULEMAKING

Public Hearing to Consider
PROPOSED AMENDMENTS TO THE
AIRBORNE TOXIC CONTROL MEASURE (ATCM)
FOR EMISSIONS OF HEXAVALENT CHROMIUM FROM
CHROME PLATING AND CHROMIC ACID ANODIZING OPERATIONS

To be considered by the Air Resources Board on May 21, 1998 at

Air Resources Board
Board Hearing Room, Lower Level
2020 L Street
Sacramento, California

Air Resources Board
P. O. Box 2815
Sacramento, California

ACKNOWLEDGMENTS

This report and the proposed regulation order for amendments to the Hexavalent Chromium Airborne Toxic Control Measure (ATCM) for Chrome Plating and Chromic Acid Anodizing Operations were developed by the Air Resources Board Emissions Assessment Branch staff with the participation of industry representatives, districts, and the public. We particularly wish to thank Randy Frazier of the Bay Area Air Quality Management District, Mohan Balagopalan of the South Coast Air Quality Management District, Dean High of Pacific Environmental Services, and Thomas Miles of Conserve Engineering Company. The following Air Resources Board staff participated in the preparation of this report:

Air Resources Board Staff

Richard Boyd
Louis Chiu
Victor Douglas
Greg Harris
Diane Moritz Johnston
Leslie Krinsk
Carol McLaughlin
Linda Nunn
Mark Watkins
Sonia Villalobos
Lisa Williams

Table of Contents

<u>Section</u>	<u>Page</u>
A. Introduction	1
B. Background	2
1. What are the main differences between the existing Chrome Plating ATCM and the Chrome Plating NESHAP?	3
2. How did the staff develop the amendments to the Chrome Plating ATCM?	4
3. What are the timeframe and procedure for replacing the Chrome Plating NESHAP with the proposed amended Chrome Plating ATCM?	5
C. Rationale and Basis for Amendments to the Chrome Plating ATCM	5
D. Recommendation	6
E. Impacts of the Proposed Amended Chrome Plating ATCM	6
1. Are the proposed amendments likely to result in any significant adverse environmental impacts?	6
2. Are the proposed amendments likely to result in any impacts on air quality?	6
3. Are the proposed amendments likely to result in any impacts on water quality and landfills?	7
4. Are the proposed amendments likely to result in adverse economic and cost impacts on California businesses?	7
5. Are the proposed amendments likely to result in any mandates on local agencies or school districts?	8
6. Are the proposed amendments likely to result in any costs to public agencies?	8

Table of Contents (continued)

<u>Section</u>	<u>Page</u>
7. Are the proposed amendments likely to result in any adverse impacts on interstate business competitiveness?	8
8. Are the proposed amendments likely to result in any adverse impacts on employment?	8
9. Are the proposed amendments likely to result in any adverse impacts on business creation, elimination, and expansion?	9
10. Are there any reasonably foreseeable mitigation measures and alternative means of compliance?	9
F. Alternatives	10
1. Dual Regulations	10
2. Rescind the Chrome Plating ATCM	10
3. Other Versions of an Amended Chrome Plating ATCM	10
Attachments	
Attachment A	Proposed Regulation Order - Hexavalent Chromium Airborne Toxic Control Measure for Chrome Plating and Chromic Acid Anodizing Operations
Attachment B	Table 1 - Comparison of Chrome Plating Regulations

A. Introduction

The Air Resources Board (ARB/Board) staff is proposing to amend the existing Hexavalent Chromium Airborne Toxic Control Measure (ATCM) -- Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities (Chrome Plating ATCM). We have proposed the amendments primarily to integrate the requirements of the Chrome Plating ATCM and the federal chrome plating regulation. The federal chrome plating requirements are contained in 40 CFR Part 63, Subpart N--National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks (Chrome Plating NESHAP).

The ARB adopted the existing Chrome Plating ATCM in February 1988. The existing Chrome Plating ATCM reduces emissions of hexavalent chromium from hard and decorative chrome plating and chromic acid anodizing operations. The ARB and the Office of Environmental Health Hazard Assessment (OEHHHA)¹ have determined that sufficient evidence exists to demonstrate the carcinogenicity of hexavalent chromium in humans. The International Agency for Research on Cancer (IARC) concurs with this finding.

Air pollution control and air quality management districts (districts) have adopted rules equivalent to the existing Chrome Plating ATCM. However, only eight districts have chrome plating or anodizing operations. In California, between 200 and 300 operations comply with the existing Chrome Plating ATCM. Most of these operations are small businesses. Additional information regarding the development and analysis of the existing Chrome Plating ATCM is in the Air Resources Board Staff Report entitled, "Initial Statement of Reasons for Proposed Rulemaking, Proposed Airborne Toxic Control Measure for Emissions of Hexavalent Chromium from Chrome Plating and Chromic Acid Anodizing Operations," dated January 1988.

In January 1995, the United States Environmental Protection Agency (U.S. EPA) promulgated the Chrome Plating NESHAP. The requirements of the Chrome Plating NESHAP are similar to the requirements of the existing Chrome Plating ATCM. The decorative chrome plating requirements became effective January 26, 1996. The hard chrome plating and anodizing requirements were to become effective January 26, 1997. U.S. EPA extended the January 26, 1997 compliance date until January 26, 1998, for operations in California. They provided this extension because we needed additional time to amend the Chrome Plating ATCM and complete the process of obtaining equivalency. Also, the chrome plating operations in California have already achieved the emission reductions. Additional information for the Chrome Plating NESHAP is provided in the U.S. EPA background information document entitled, "Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations--Background Information for Promulgated Standards" (EPA-453/R- 94-082b).

Chrome plating and anodizing operations in California are subject to both the Chrome

¹ The Office of Environmental Health Hazard Assessment is the State agency responsible for developing health risk assessment methodologies. These functions were previously performed under the California Department of Health Services (DHS).

Plating ATCM and the Chrome Plating NESHAP. Rather than subjecting source owners and operators to two regulations, we are amending the existing Chrome Plating ATCM to incorporate U.S. EPA provisions that are necessary in order to grant equivalency.² Once the U.S. EPA grants equivalency to the proposed amended Chrome Plating ATCM, California operations will be subject to only one chrome plating regulation.

We do not expect the proposed amendments to alter the health benefits already achieved by the Chrome Plating ATCM. As previously stated, the emission reductions have already been achieved in California.

B. Background

Chrome plating operations convert hexavalent chromium in solution to a chromium metal layer by electroplating. “Decorative” chrome plating involves applying a thin layer of chromium metal that gives a decorative and protective finish to parts such as faucets and car bumpers. “Hard” chrome plating involves applying a thicker layer of chromium metal that provides a hard, smooth surface to machine parts such as crankshafts and printing rollers. Chromic acid anodizing creates a wear-and-corrosion-resistant surface.

Hexavalent chrome is emitted into the air when electric current is applied to the plating or anodizing bath. Exposure to chromium in an occupational setting, where concentration levels tend to be two to three orders of magnitude greater than ambient air levels, has resulted in nasal septum perforation, respiratory irritation, and skin reactions. The predominant site for cancer development has been the lung.

The ARB identified hexavalent chromium in accordance with Health and Safety Code section 39650, et seq. as a toxic air contaminant in January 1986. The Board identified hexavalent chromium as a toxic air contaminant for which there is not sufficient available scientific evidence to identify a threshold exposure level below which no significant adverse health effects are anticipated (Title 17, California Code of Regulations, section 93000).

After a substance is identified as a toxic air contaminant, the ARB Executive Officer, in cooperation with districts and affected sources, is required by Health and Safety Code section 39665 to prepare a report on the need and appropriate degree of regulation for the toxic air contaminant. The ARB complied with those requirements when they adopted the existing Chrome Plating ATCM in February 1988.

1. What are the main differences between the existing Chrome Plating ATCM

² Equivalency is the regulatory process the U.S. EPA uses to approve an alternative state or district rule as equivalent to the Chrome Plating NESHAP. When this occurs, the alternative rule becomes the applicable Chrome Plating NESHAP for that state or district. The equivalency process is set forth in regulation promulgated under section 112(l) of the Clean Air Act and contained in 40 CFR Part 63, subpart E.

and the Chrome Plating NESHAP?

The proposed amended Chrome Plating ATCM is a hybrid of the existing Chrome Plating ATCM and the federal Chrome Plating NESHAP. The table below highlights the main differences between the existing Chrome Plating ATCM and the federal Chrome Plating NESHAP. The most significant differences are the detailed work practice, monitoring, recordkeeping, and reporting requirements that the Chrome Plating NESHAP contains that are not contained in the existing Chrome Plating ATCM.³

Table 1
Comparison of the existing Chrome Plating ATCM to the Chrome Plating NESHAP

Requirement	State Regulation (existing Chrome Plating ATCM)	Federal Regulation (Chrome Plating NESHAP)
hard chrome emission limit	<ul style="list-style-type: none"> • mass per electric power used, or percent reduction in chrome emissions • three tier-small, medium, large 	<ul style="list-style-type: none"> • mass per volume of air and specific equipment required • two tier-small, large
decorative chrome emission limit	<ul style="list-style-type: none"> • percent reduction in chrome emissions 	<ul style="list-style-type: none"> • surface tension requirement or mass per volume air
trivalent chrome requirements	<ul style="list-style-type: none"> • not covered - - not considered a carcinogen by ARB/OEHHA 	<ul style="list-style-type: none"> • surface tension requirement
operation and maintenance plans	not required	required
inspection/maintenance requirements	not required by ATCM, generally required by district permit condition	required
monitoring requirements	not required by ATCM, generally required by district permit condition	required
recordkeeping	not required by ATCM, generally required by district permit condition	required
reporting	not required by ATCM, generally required by other district rules or permit conditions	required

2. How did the staff develop the amendments to the Chrome Plating ATCM?

ARB staff began discussions with districts and U.S. EPA Region 9 staff in July 1995 to

³ The Chrome Plating ATCM does not contain detailed work practice, monitoring, recordkeeping and reporting requirements but leaves it to the district to establish appropriate requirements when it issues operating permits to chrome platers and anodizers.

determine if we could substitute the existing Chrome Plating ATCM for the Chrome Plating NESHAP in California. We formed a chrome plating equivalency workgroup consisting of U.S. EPA Region 9, ARB, and district staff. This workgroup met six times between July and December 1995. It became clear from these discussions that we would need to make changes to the existing Chrome Plating ATCM before U.S. EPA would consider it equivalent.

In December 1995, ARB submitted to U.S. EPA a draft amended Chrome Plating ATCM. In April 1996, U.S. EPA provided comments regarding the draft amended Chrome Plating ATCM. U.S. EPA commented that the draft amended Chrome Plating ATCM was not approvable. Their main issues concerned incorporating work practice, monitoring, recordkeeping, and reporting requirements identical to the Chrome Plating NESHAP.

We revised the draft amended Chrome Plating ATCM and formally submitted it to U.S. EPA for equivalency on July 16, 1996. On August 22, 1996, U.S. EPA rejected our equivalency submittal because the amended Chrome Plating ATCM was not a formally adopted regulation. It is U.S. EPA's position that they can only act on formally adopted regulations and not on draft or proposed regulations. U.S. EPA provided comments on the draft amended Chrome Plating ATCM. Again, U.S. EPA identified issues that they indicated would prevent them from approving the ATCM as equivalent to the Chrome Plating NESHAP. ARB staff disagreed with U.S. EPA on many issues because the provisions in question have no impact on the emission reductions. However, we made revisions and submitted another draft amended Chrome Plating ATCM to U.S. EPA in May 1997.

On November 19 and 21, 1996, ARB held public workshops on the draft amended Chrome Plating ATCM (same version and submitted to U.S. EPA in May 1997). From December 1996 through March 1997, a special Title III Chrome Subgroup made up of ARB, California Air Pollution Control Officers Association (CAPCOA) representatives, and U.S. EPA (Region 9 and Headquarters staff) worked on resolving outstanding equivalency issues. This effort was unsuccessful in resolving differences.

Beginning in July 1997, we discussed chrome equivalency issues as part of an evaluation of five NESHAPs (Sacramento Protocol Project).⁴ As a result of this effort, we successfully resolved several issues. ARB staff believes that we reached a consensus regarding the contents of an amended Chrome Plating ATCM that U.S. EPA would accept as equivalent to the Chrome Plating NESHAP. However, we do not agree with U.S. EPA that each provision that we have included is necessary. We revised the proposed amended Chrome Plating ATCM incorporating comments from U.S. EPA, the public, and agreements reached as part of the Sacramento Protocol Project.

In February 1998, we held a public workshop to discuss the changes we are proposing to

⁴ A team of government experts was assembled to compare and resolve differences between federal, State, and district air pollution control requirements.

the Chrome Plating ATCM. We also asked U.S. EPA to review and provide initial comment as to the acceptability of the proposed Chrome Plating ATCM as equivalent to the federal Chrome Plating NESHAP. U.S. EPA has not responded as of March 1998. The proposed amended Chrome Plating ATCM is in Attachment A of this Staff Report.

3. What are the timeframe and procedure for replacing the Chrome Plating NESHAP with the proposed amended Chrome Plating ATCM?

The proposed amended Chrome Plating ATCM will not automatically replace the Chrome Plating NESHAP. The Chrome Plating ATCM must be adopted by the Board, submitted to and approved by the Office of Administrative Law, and filed by the Secretary of the State. Then, we must submit the Chrome Plating ATCM to U.S. EPA for their approval to replace the Chrome Plating NESHAP. In the submittal to U.S. EPA, we must justify each provision.

To expedite the process, we are requesting adoption as an emergency regulation so that the proposed amended Chrome Plating ATCM becomes effective upon filing with the Secretary of the State. Once the proposed amended Chrome Plating ATCM becomes State law, we can submit a complete equivalency package to the U.S. EPA for their approval. U.S. EPA's equivalency regulation (40 CFR part 63, subpart E) allows up to 210 days [30 days for completeness, 180 days to review] to approve or disapprove our request. Therefore, the proposed amended Chrome Plating ATCM could formally replace the federal Chrome Plating NESHAP in early 1999, assuming U.S. EPA acts on our request within its statutory timeframe.

C. Rationale and Basis for Amendments to the Chrome Plating ATCM

The purpose of the proposed amendments is to integrate the existing Chrome Plating ATCM requirements with the Chrome Plating NESHAP requirements. The proposed amended Chrome Plating ATCM is a hybrid of the existing Chrome Plating ATCM and the Chrome Plating NESHAP.

Staff is proposing to amend the existing Chrome Plating ATCM to include a specific applicability statement and to expand the applicability to trivalent chrome operations. The emission limitations for hard chrome operations remain unchanged. Staff is proposing to replace the existing emission limitations for decorative chrome operations with the emission limitations contained in the Chrome Plating NESHAP. We are also proposing to add performance test requirements, inspection and maintenance requirements, monitoring provisions, recordkeeping and reporting requirements consistent with, but not identical to, the requirements contained in the Chrome Plating NESHAP.

The proposed Chrome Plating ATCM differs from the federal Chrome NESHAP in several areas. The most significant differences are the alternative emission limitations for hard chrome platers and the streamlined recordkeeping and reporting requirements. A plain English summary of the requirements of the existing Chrome Plating ATCM, the federal Chrome NESHAP, and the proposed amended Chrome Plating ATCM are contained in Attachment B, Table 1 of this Staff Report. Table 1 also contains the reason for each amendment.

D. Recommendation

Staff recommends that the Board rescind the existing Chrome Plating ATCM and replace it with the proposed amended Chrome Plating ATCM.

E. Impacts of the Proposed Amended Chrome Plating ATCM

1. Are the proposed amendments likely to result in any significant adverse environmental impacts?

We have determined that the proposed amended Chrome Plating ATCM will not have any significant adverse impacts on the environment. The proposed amended Chrome Plating ATCM achieves the same reductions as the existing Chrome Plating ATCM. Therefore, we expect no significant adverse impacts resulting from the amended regulation. Insignificant impacts associated with disposal of plating bath contents could arise from owners or operators of decorative chrome plating tanks who choose to replace current bath contents to meet the new, federally required, surface tension. However, old bath contents will be disposed of in accordance with current practices that minimize environmental impact. Requirements for hazardous waste generators are outlined in the California Health and Safety Code section 25100 et seq., and the California Code of Regulations (CCR), Title 22, Chapter 30.

2. Are the proposed amendments likely to result in any impacts on air quality?

We do not anticipate any air quality degradation. A small improvement in emission reductions of hexavalent chrome may result from the decrease in surface tension for decorative chrome tanks using a wetting agent. The overall conclusion reached during the development of the existing Chrome Plating ATCM was that it would reduce annual emissions of hexavalent chromium by 11,700 pounds. This reduction represents an overall 97 percent decrease from emissions emanating from chrome platers and chromic acid anodizers prior to the implementation of the Chrome Plating ATCM.

Ambient air concentrations of hexavalent chrome and the associated cancer risk have decreased 60 percent from 1991 to 1996. Table 2 lists the statewide average concentrations of hexavalent chrome for the years 1991 to 1996. The ambient air concentrations of hexavalent chrome may not reflect “Hot Spot” concentrations at or near sources of hexavalent chrome. We anticipate greater emission reductions at or near sources of hexavalent chrome.

Table 2
Statewide Average Hexavalent Chrome Concentrations

Year	Average (ng/m³)
1991	0.332
1992	0.251
1993	0.219
1994	0.204
1995	0.284
1996	0.134

3. Are the proposed amendments likely to result in any impacts on water quality and landfills?

Impacts on water quality and landfills were analyzed during the development of the existing Chrome Plating ATCM. When the Board adopted the existing Chrome Plating ATCM, they agreed that no significant environmental impact would occur on water quality and landfill loading. These same conclusions hold true for the proposed amended Chrome Plating ATCM because the same technology will remain in effect.

4. Are the proposed amendments likely to result in adverse economic and cost impacts on California businesses?

We do not anticipate an adverse economic or cost impact to business. We designed the proposed amended Chrome Plating ATCM to provide a single, easy-to-understand regulation that will continue to satisfy the existing State requirements and should satisfy the federal requirements. Most hard chrome plating, decorative chrome plating, and chromic acid anodizing operations are complying with the proposed amended Chrome Plating ATCM except the additional monitoring, recordkeeping, and reporting requirements. We believe that the actions we are taking will result in cost savings to businesses compared to implementing and enforcing the existing Chrome Plating ATCM and the Chrome Plating NESHAP, or just the Chrome Plating NESHAP. These cost savings result from the elimination of duplicative requirements and from the elimination and streamlining of requirements in the Chrome Plating NESHAP.

5. Are the proposed amendments likely to result in any mandates on local agencies or school districts?

The State action to amend the existing Chrome Plating ATCM will not result in any new State mandates on school districts. It will result in new mandates on State and local air pollution control agencies. State and local agencies will be required to implement and enforce several new requirements added to the proposed amended Chrome Plating ATCM. These new requirements were added because U.S. EPA indicated that they were needed for U.S. EPA to find the ATCM equivalent to the Chrome Plating NESHAP. The U.S. EPA, not the State and districts, is required to implement and enforce the Chrome Plating NESHAP. However, sources are required to comply with both the State and federal regulation. Further, the only way to consolidate the State ATCM and the federal NESHAP is for the State to incorporate the requirements, that U.S. EPA believes necessary for equivalency, into the State ATCM.

6. Are the proposed amendments likely to result in any costs to public agencies?

The proposed amendments will create some new costs to State and districts. These costs are associated with implementing and enforcing new requirements added to the ATCM to address U.S. EPA's equivalency issues. The cost will be associated with reviewing plans and reports; inspecting sources to determine compliance with new work practice, recordkeeping, and reporting requirements; and tracking periodic report submittal. However, the proposed amended Chrome Plating ATCM will result in cost savings to the State and districts compared to implementing and enforcing the existing Chrome Plating ATCM and the Chrome Plating NESHAP, or just the Chrome Plating NESHAP.

7. Are the proposed amendments likely to result in any adverse impacts on interstate business competitiveness?

We anticipate that the proposed amended Chrome Plating ATCM will have no adverse impact on interstate business competitiveness. The proposed amendments are to integrate State and federal regulations into a single regulation. U.S. EPA requires chrome plating operations in other states to comply with the Chrome Plating NESHAP or, in the event that the U.S. EPA deems a substitute rule equivalent, comply with very similar requirements. Therefore, the Chrome Plating NESHAP improves interstate competitiveness since U.S. EPA requires chrome plating tanks in other states to operate with controls similar to operations in California.

8. Are the proposed amendments likely to result in any adverse impacts on employment?

We anticipate that the proposed amended Chrome Plating ATCM will have no adverse impact on employment. Some additional labor is involved in the monitoring, recordkeeping, and reporting aspects of compliance with the proposed amended Chrome Plating ATCM. Whether or not the Board adopts the amendments, chrome plating operations are subject to the Chrome

Plating NESHAP. Chrome plating operations must comply with the monitoring, recordkeeping, and reporting requirements until and unless the U.S. EPA approves the proposed amended Chrome Plating ATCM as equivalent to the Chrome Plating NESHAP.

9. Are the proposed amendments likely to result in any adverse impacts on business creation, elimination, and expansion?

We anticipate that the proposed amended Chrome Plating ATCM will have no adverse impact on business creation, elimination, and expansion. Businesses must comply with the provisions contained in the proposed amendments whether or not the Board adopts the proposed amendments since they must comply with the Chrome Plating NESHAP. Therefore, no adverse impacts are expected as a result from our action.

10. Are there any reasonably foreseeable mitigation measures and alternative means of compliance?

We considered several alternatives to amending the existing Chrome Plating ATCM. Alternatives include requiring chrome plating operations to comply with both the existing Chrome Plating ATCM and the Chrome Plating NESHAP, rescinding the existing Chrome Plating ATCM and adopting the Chrome Plating NESHAP, and proposing different amendments to the existing Chrome Plating ATCM. ARB staff expects that no significant adverse impacts will occur due to the “reasonably foreseeable alternative means of compliance.”

We are not proposing to require chrome plating operations to comply with both the existing Chrome Plating ATCM and the Chrome Plating NESHAP. We believe that dual regulations are an inefficient use of resources and a burden to facilities and agencies.

We are not proposing to rescind the existing Chrome Plating ATCM and adopt the Chrome Plating NESHAP because we cannot be certain that the emission reductions achieved with the existing Chrome Plating ATCM would continue with the Chrome Plating NESHAP. In the paper entitled, “*Impact of the Chromium NESHAP on Military Installations*”⁵, the authors concluded that “the Federal Chromium NESHAP is less stringent than existing California requirements.” An additional consideration is the complexity of the federal regulation. The Administrative Procedure Act requires that State regulations be written so that persons directly affected by them will easily understand the meaning. The Chrome Plating NESHAP does not meet this requirement.

⁵ *Impact of the Chromium NESHAP on Military Installations*, Drek A. Newton and David A. Reed, for Presentation at the 89th Annual Meeting and Exhibition of the Air & Waste Management Association in Nashville, Tennessee on June 23-38, 1996.

We investigated substituting the existing Chrome Plating ATCM for the federal Chrome Plating NESHAP and have worked with U.S. EPA on several other versions of the proposed amended Chrome Plating ATCM. U.S. EPA has indicated it will not approve a regulation as equivalent for replacing the Chrome Plating NESHAP unless we prescribe the monitoring, recordkeeping, and reporting provisions as in the proposed amended Chrome Plating ATCM.

F. Alternatives

1. Dual Regulations

Currently, chrome plating operations are subject to both the Chrome Plating ATCM and the Chrome Plating NESHAP. One alternative to adopting the proposed amended Chrome Plating ATCM is to enforce two regulations. This approach forces chrome plating owners and operators to comply with two regulations generating compliance uncertainty.

2. Rescind the Chrome Plating ATCM

Rather than replace the Chrome Plating NESHAP with the Chrome Plating ATCM, we could choose to replace the Chrome Plating ATCM with the Chrome Plating NESHAP. By rescinding the Chrome Plating ATCM, the Chrome Plating NESHAP becomes the single regulation in effect. However, the emission reductions achieved with the existing Chrome Plating ATCM may not continue with the Chrome Plating NESHAP. The authors of the paper entitled, *“Impact of the Chromium NESHAP on Military Installations”* conclude that “the Federal Chromium NESHAP is less stringent than existing California requirements.” Their data indicates that the most stringent federal emission limitation (mg/dscm) is equivalent to California’s least stringent limitation (mg/ampere-hour). Additionally, the Chrome Plating NESHAP is a long, difficult-to-understand document. The regulatory adoption process specified in the Administrative Procedure Act requires that we write regulations so that persons directly affected by them easily understand the meaning.

3. Other Versions of an Amended Chrome Plating ATCM

Another alternative to adopting the proposed amended Chrome Plating ATCM is to adopt an amended Chrome Plating ATCM with amendments different from those proposed. U.S. EPA has indicated it will not approve a Chrome Plating regulation as equivalent for replacing the Chrome Plating NESHAP unless we prescribe the monitoring, recordkeeping, and reporting provisions as in the proposed amended Chrome Plating ATCM.

Attachment B

Table 1 - Comparison of Chrome Plating Regulations

Attachment B: Table 1 - Comparison of Chrome Plating Regulations

Comparison of Chrome Plating Regulations (1/98)				
Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
Applicability	decorative chrome, hard chrome, and chromic acid anodizing operations, except trivalent chrome operations	decorative chrome, hard chrome, and chromic acid anodizing operations, including trivalent chrome operations	<ul style="list-style-type: none"> ● add a specific applicability statement ● include trivalent chrome operations 	<ul style="list-style-type: none"> ● improves clarity ● necessary for equivalency with NESHAP
		exempts research and laboratory operations	<ul style="list-style-type: none"> ● none, retain requirement for research and laboratory operations to meet standard 	
Emission Limits		very small, hard: 45 dynes/cm surface tension of wetting agent	<ul style="list-style-type: none"> ● add requirement for very small, hard chrome platers using 500,000 amp-hr/yr or less to meet a 45 dynes/cm surface tension 	<ul style="list-style-type: none"> ● provides relief for very small, hard chrome platers without increasing risk

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
Emission Limits (con't.)	<p>small, hard: either 95 percent or more emission reduction or emissions less than 0.15 mg /amp-hr</p> <p>medium, hard: either 99 percent or more emission reduction or emissions less than 0.03 mg/amp-hr</p> <p>large, hard: either 99.8 percent or more emission reduction or emissions less than 0.006 mg/amp-hr</p>	<p>small, hard: 0.03 mg/dscm (existing) and 0.015 mg/dscm (new)</p> <p>large, hard: 0.015 mg/dscm (existing) 0.015 mg/dscm (new)</p>	<ul style="list-style-type: none"> ● eliminate 95 percent standard, but retain the 0.15 mg/amp-hr requirement for existing small hard chrome platers ● add a 0.03 mg/amp-hr requirement or a 0.15 mg/amp-hr and 0.015 mg/dscm for existing small hard chrome platers using 60 more than million amp-hr/yr ● add a 0.03 mg/amp-hr requirement for new (constructed after 12/16/93) small hard chrome platers using less than or equal to 60 million amp-hr/yr ● add a 0.006 mg/amp-hr requirement for new (constructed after 12/16/93) small hard chrome platers using more than 60 million amp-hr/yr ● eliminate 99 percent standard but retain the 0.03 mg/amp-hr requirement for medium hard chrome platers using less than or equal to 60 million amp-hr/yr ● add a 0.006 mg/amp-hr requirement or a 0.03 mg/amp-hr and 0.015 mg/dscm for existing medium hard chrome platers using 60 more than million amp-hr/yr ● add a 0.006 mg/amp-hr requirement for new medium hard chrome platers using more than 60 million amp-hr/yr ● eliminate 99.8 percent standard but retain the 0.006 mg/amp-hr requirement for large hard chrome platers 	<ul style="list-style-type: none"> ● necessary for equivalency with NESHAP ● necessary for equivalency with NESHAP ● necessary for equivalency with NESHAP ● necessary for equivalency with NESHAP ● necessary for equivalency with NESHAP ● necessary for equivalency with NESHAP ● necessary for equivalency with NESHAP ● necessary for equivalency with NESHAP

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
Emission Limits (Cont.)	decorative: 95 percent or more emission reduction	decorative: 0.01 mg/dscm or 45 dynes/cm surface tension of wetting agent	● delete existing ATCM requirements and replace with NESHAP standard-- 0.01 mg/dscm or 45 dynes/cm surface tension	● rule improvement ● necessary for equivalency with NESHAP;
Emission Limits (Cont.)	small, anodizing: either 95 percent or more emission reduction or emissions less than 0.15 mg/amp-hr medium, anodizing: either 99 percent or more emission reduction or emissions less than 0.03 mg/amp-hr large, anodizing: medium: either 99.8 percent or more emission reduction or emissions less than 0.006 mg/amp-hr	anodizing: 0.01 mg/dscm or 45 dynes/cm surface tension of wetting agent	● delete existing ATCM requirements and replace with NESHAP standard-- 0.01 mg/dscm or 45 dynes/cm surface tension	● necessary for equivalency with NESHAP
Work Practice Standards	install a non-resettable totalizing ampere-hour meter on each tank	not required	● retain requirement	● necessary to demonstrate compliance with the regulation
		-visually inspect device to ensure there is proper drainage, no unusual chromic acid buildup on the pads, and no evidence of chemical attack that affects the structural integrity of the device -inspect 1/quarter for composite mesh-pad system, packed-bed scrubber, PBS/CMP system, fiber-bed mist eliminator	● add equivalent inspection and maintenance requirements	● necessary for equivalency with NESHAP

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
Work Practice Standards (Cont.)		visually inspect back portion of the control device to ensure that there is no unusual breakthrough of chromic acid mist 1/quarter for composite mesh-pad system, packed-bed scrubber, PBS/CMP system	● add equivalent inspection and maintenance requirements	● necessary for equivalency with NESHAP
		visually inspect ductwork form tank to the control device to ensure there are no leaks 1/quarter for composite mesh-pad system, packed-bed scrubber, PBS/CMP system, fiber-bed mist eliminator	● add equivalent inspection and maintenance requirements	● necessary for equivalency with NESHAP
		perform washdown of the composite mesh-pads, PBS/CMP, fiber-bed mist eliminator in accordance with manufacturers recommendations	● add equivalent inspection and maintenance requirements	● necessary for equivalency with NESHAP
		add fresh make-up water to the top of the packed-bed whenever make-up water is added	● add almost identical inspection and maintenance requirements - add fresh make-up water to the packed-bed only	● modified NESHAP requirement ● necessary for equivalency with NESHAP
Emissions Monitoring	implicitly requires a source test to ensure that the emissions limitation is met	requires a performance test	● add requirements for performance test and test methods	● clarify testing requirement ● necessary for equivalency with NESHAP

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
Continuous Compliance Monitoring		<p>- daily monitor and record the pressure drop across the system to within \pm one inch of water for composite mesh pad, packed-bed scrubber, and CMP/PBS and across both the fiber-bed mist eliminator and the control device upstream of the fiber-bed mist eliminator</p> <p>- daily monitor and record the inlet velocity pressure to within ten percent for the packed-bed scrubber</p>	<p>● add requirement for continuous monitoring of Δp, record value once per week</p> <p>● add requirement for continuous monitoring of inlet velocity pressure (ivp), record value once per week</p>	<p>● district practice to require this</p> <p>● modified NESHAP frequency requirement</p> <p>● necessary for equivalency with NESHAP</p> <p>● district/sources need flexibility to modify frequency requirement</p> <p>● necessary for equivalency with NESHAP</p>
		<p>- monitor and record the surface tension of the bath once every four hours for wetting agent or combination wetting agent/foam blanket fume suppressants</p> <p>- hourly monitoring and recording of the foam blanket thickness</p>	<p>● add requirement to monitor surface tension daily for 20 days, and weekly thereafter as long as there are no violations of the surface tension requirement.</p> <p>● add requirement to monitor foam blanket thickness hourly for 15 days, and daily thereafter as long as there are no violations of the foam thickness requirement.</p>	<p>● periodic measurement of surface tension appropriate compliance assurance measure</p> <p>● modified NESHAP frequency requirement</p> <p>● necessary for equivalency with NESHAP</p> <p>● district/sources need flexibility to modify frequency requirement</p> <p>● periodic measurement of foam thickness appropriate compliance assurance measure</p> <p>● modified NESHAP frequency requirement</p> <p>● necessary for equivalency with NESHAP</p>

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
Control Device not listed in NESHAP	any controls that meet emission limitation	must submit a description of the device, test results verifying the performance of the device using Method 306 or CARB Method 425, a copy of the O&M plan, and operating parameters that will be monitored to establish continuous compliance	<ul style="list-style-type: none"> ● add Chrome Tank Covers and HEPA filter to ATCM/district rule with appropriate monitoring and recordkeeping requirements. 	<ul style="list-style-type: none"> ● recognize existing technologies; avoid additional submittals for sources in California with these devices
Performance test requirements and test methods § 63.344		<p>Requires 33 to 66 micrograms of catch in the sampling train for colorimetric analysis.</p> <p>Requires a catch that is 5 to 10 times the minimum detection limit of the analytical method for AAGF and ICPCR.</p> <p>Specifies a minimum of 3 separate runs.</p>	<ul style="list-style-type: none"> ● Sufficient catch mass is required by ARB Method 425 adopted July 28, 1998 ● Sufficient catch mass is required by Method 425 adopted July 28, 1998 ● Three separate runs are required by Method 425 ● ATCM specifies three runs for Method 306 ● allows SCAQMD Method 205.1, for results reported as total chromium 	<ul style="list-style-type: none"> ● included in recent test method update - U.S. EPA has approved ARB Method 425 as equivalent ● included in recent test method update ● included in recent test method update ● necessary for equivalency with NESHAP
Provisions for new and reconstructed sources § 63.345	Sources subject to district new source review rules which requires that a source obtain a permit to construct anything that may issue air contaminants.	Requires notification of construction or reconstruction.	<ul style="list-style-type: none"> ● add provision to ATCM requiring preconstruction review for new and modified sources 	<ul style="list-style-type: none"> ● necessary for equivalency with NESHAP
Recordkeeping Requirements § 63.346		Identification of each period of excess emissions that occurs during malfunctions of the process, add-on control, or monitoring equipment.	<ul style="list-style-type: none"> ● add recordkeeping provision to record emissions exceeding the emission limitation and/or monitoring parameter and include date of occurrence, duration cause, and magnitude of the excess 	<ul style="list-style-type: none"> ● necessary for equivalency with NESHAP

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
		Identification of each period of excess emissions that occurs during other than malfunctions of the process, add-on control, or monitoring equipment.	● add recordkeeping provision to record emissions exceeding the emission limitation and/or monitoring parameter and include date of occurrence, duration cause, and magnitude of the excess	● necessary for equivalency with NESHAP
		Total process operating time of the source.	● add requirement to record the total amp-hour expended each month and the total expended to date instead of total process operating time	● modified NESHAP requirement consistent with practices in California
		If actual rectifier capacity is used to determine facility size, records of actual cumulative rectifier capacity of hard chrome tanks expended each month, and the total expended to date for the reporting period.	● add requirement to record the total amp-hour expended each month and the total expended to date instead of total process operating time	● necessary for equivalency with NESHAP
		Records of date and time that fume suppressants are added to the bath.	● add requirement to record the date, time, volume and product identification of the fume suppressant added to the plating or anodizing bath	● necessary for equivalency with NESHAP
		Records of bath components purchased with the wetting agent clearly identified as a bath constituent contained in one of the components.	● add requirement to record the bath components purchased with the wetting agent clearly identified as a bath constituent contained in one of the components	● necessary for equivalency with NESHAP
Recordkeeping Requirements § 63.346 (con't.)		Information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements, if a source has been granted a waiver.	● add process for obtaining approval of alternative requirements	

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
		All documentation supporting the required notifications and reports.	● add requirement for specific records to be kept	● necessary for equivalency with NESHAP
Reporting Requirements § 63.347		Initial Notifications 63.47(c)	Date passed - moot.	
		1. Notification of Compliance Status 63.347(e) shall include:	● add requirement to require compliance status notification consistent with NESHAP requirements	● necessary for equivalency with NESHAP
		2. Applicable emission limitation and methods used to determine compliance.	● add requirement to require applicable emission limitation and methods used to determine compliance	● necessary for equivalency with NESHAP
		3. If a performance test is required, the test report documenting the results.	● add requirement to require the test report documenting the results if a performance test is required	● necessary for equivalency with NESHAP
		4. The type and quantity of HAPs emitted by the source in mg/dscm or mg/hr. For sources not required to conduct performance tests, the surface tension measurement.	● add requirement to require the type and quantity of HAPs emitted by the source in mg/dscm or mg/hr. For sources not required to conduct performance tests, the surface tension measurement	● necessary for equivalency with NESHAP
		5. For each monitored parameter, the specific operating parameter value or range that corresponds to compliance with the emission limit.	● add requirement to require the specific operating parameter value or range that corresponds to compliance with the emission limit for each monitored parameter	● necessary for equivalency with NESHAP
Reporting Requirements § 63.347 (Cont.)		6. The methods that will be used to determine continuous compliance.	● add requirement to require the methods that will be used to determine continuous compliance	● necessary for equivalency with NESHAP
		7. A description of the air pollution control technique.	● add requirement to require description of the air pollution control technique	● necessary for equivalency with NESHAP

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
		8. A statement that the owner/operator has completed and filed an O & M plan.	● add requirement to require statement that the owner/operator has completed and filed an O & M plan	● necessary for equivalency with NESHAP
		9. If facility size is based on actual rectifier capacity, the record to support that a facility is small.	● add requirement to submit annual cumulative amp-hrs usage	● necessary for equivalency with NESHAP
		10. A statement by the owner/operator as to whether the source has complied with this subpart.	● add requirement to require statement by the owner/operator as to whether the source has complied with this subpart	● necessary for equivalency with NESHAP
		Ongoing Compliance Status Reports for Major Sources 63.347(g)	● add requirement to require Ongoing Compliance Status Reports	● necessary for equivalency with NESHAP
		Semi-annual Reports [except when the emission limit has been exceeded, then quarterly reports shall be submitted.]	● add requirement to require reports annually	● necessary for equivalency with NESHAP
		Report Content:		
		1. Company name and address.	● add requirement to require company name and address	● necessary for equivalency with NESHAP
Reporting Requirements § 63.347 (Cont.)		2. An identification of the operating parameter that is monitored for compliance determination.	● add requirement to require identification of the operating parameter that is monitored for compliance determination	● necessary for equivalency with NESHAP
		3. The relevant emission limitation and the operating parameter value that corresponds to compliance.	● add requirement to require the relevant emission limitation and the operating parameter value that corresponds to compliance	● necessary for equivalency with NESHAP

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
		4. Beginning and ending dates of the reporting period.	● add requirement to require Beginning and ending dates of the reporting period	● necessary for equivalency with NESHAP
		5. Description of the type of process performed.	● add requirement to require description of the type of process performed	● necessary for equivalency with NESHAP
		6. Total operating time during the reporting period	● add requirement to require total operating time during the reporting period	● necessary for equivalency with NESHAP
		7. The actual cumulative rectifier capacity for the reporting period and on a month-by-month basis, if the source is a hard plater limiting size by actual capacity.	● add requirement to require the actual cumulative rectifier capacity for the reporting period and on a month-by-month basis, if the source is a hard plater limiting size by actual capacity.	● necessary for equivalency with NESHAP
Reporting Requirements (Cont.)		8. Summary of operating parameters, including duration of excess emissions, the duration of excess emissions expressed as a percentage of the total operating time, and a breakdown of the total excess emissions into those due to process upsets, control equipment malfunctions, other known causes, and unknown causes.	● add requirement to require a summary of any excess emissions or exceeded monitoring parameters as identified in the records required	● necessary for equivalency with NESHAP
		9. Certification by a responsible official that work practice standards were followed according to the O & M plan for the source.	● add requirement to require certification by a responsible official that inspection and maintenance requirements were followed according to the O&M plan for the source	● necessary for equivalency with NESHAP

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
		10. If the O&M plan were not followed, an explanation of the reasons and an assessment of any excess emissions that occurred as a result, and copies of reports documenting why the O&M plan was not followed.	● add requirement to require an explanation of the reasons and an assessment of any excess emissions that occurred as a result, and copies of reports documenting why the O & M plan was not followed	● necessary for equivalency with NESHAP
		11. A description of any changes in monitoring, processes, or controls since the last reporting period.	● add requirement to require a description of any changes in monitoring, processes, or controls since the last reporting period	● necessary for equivalency with NESHAP
		12. Name, title, and signature of the responsible official certifying the accuracy.	● add requirement to require Name, title, and signature of the responsible official certifying the accuracy	● necessary for equivalency with NESHAP
Reporting Requirements (Cont.)		13. Date of the report.	● add requirement to require the date of the report	● necessary for equivalency with NESHAP
		Ongoing Compliance Reports for Area Sources 63.347(h)	● add requirement to require Ongoing Compliance Status Reports	● necessary for equivalency with NESHAP
		Annual Report	● add requirement to require reports to be prepared annually for area sources	● necessary for equivalency with NESHAP
		Report Content Same as for major	● add requirement to require area source reports to contain the same information as major source reports	● necessary for equivalency with NESHAP
		Reports for Trivalent Chrome Baths	● add requirement to require reports associated with trivalent chromium baths	● necessary for equivalency with NESHAP
		Name, title, and address of the owner or operator.	● add requirement to require the name and address of each source subject to trivalent chrome reports	● necessary for equivalency with NESHAP

Comparison of Chrome Plating Regulations (1/98)

Rule Element	Existing Chrome Plating ATCM	Chrome Plating NESHAP	Proposed Amended Chrome Plating ATCM	Reason for Amendment
		Address of each source.	● add requirement to require the name and address of each source subject to trivalent chrome reports	● necessary for equivalency with NESHAP
		A statement that subpart N is the basis of the notification.		
		Identify each applicable emission limit and compliance date for each source.		
		Brief description of each affected source.		
Reporting Requirements (Cont.)		A statement that a trivalent chrome process that incorporates a wetting agent will be used to comply.	● add requirement to require a statement that a trivalent chrome process that incorporates a wetting agent will be used to comply	● necessary for equivalency with NESHAP
		List of bath components with wetting agent identified.	● add requirement to require list of bath components with wetting agent identified	● necessary for equivalency with NESHAP
General Issue: Approval of Alternative Requirements	The lack of specifics in the monitoring, work practice standards, recordkeeping, reporting, and test method areas of concern mean that the district is free to determine the requirements on a case-by-case basis.	The NESHAP (via General Provisions) allow alternative requirement	● add section (j) to identify the process and criteria for establishing alternative requirements; provide U.S. EPA concurrence on emissions related elements	● necessary to effectively implement Chrome Plating ATCM and provide appropriate level of flexibility to districts/operations
Breakdown vs. Malfunction	Sources must comply with district breakdown rule	NESHAP uses the term malfunction.	● ATCM uses the term breakdown; add requirement to require compliance with district breakdown rule	● improves clarity
Modification vs. Reconstruction	New or modified sources must comply with new source standards.	New or reconstructed sources must comply with new source MACT.	● add to definition of modification a provision that exact replacements that exceed 50 % of cost are considered a modification	● necessary for equivalency with NESHAP